morphology, classification, and organic evolution. He then enters upon a discussion of the cell as the unit of life and structure.

Following the method of evolution, he traces the development of the plant body through the flagellates, the algae, bryophytes, pteridophytes, and spermatophytes. The thalloid degenerates are gathered for convenience into the series algae, and then their diverse relationships, or lack of relationship, are explained.

Frequent summaries throughout the text treat carefully of the origin and relationship of all the classes, and are as noticeable for what they refrain from saying as for what they say.

The return to the use of the term "chromatophore" is unfortunate and confusing. The idea, clearly given (pp. 205 and 213) that the red and brown pigments in the so-called chromatophores do the work of photosynthesis is not warranted by botanical research; therefore, to make color the basis of the notion is to take a step backward and revert to Murray's chlorophore, phaeophore, and erythrophore.

The author illustrates the resulting confusion by referring to the "chloroplastids of funaria" (p. 161, Fig. 169), and the "chromatophores of a moss" (p. 165, Fig. 169).

While the author's English is of a high order throughout, his reference to "sealed *tinned* foods" and "the *canning* industry" is likely to cause a smile.

Aside from the summaries already referred to, special commendation is due the treatment of the topics: fermentation, gametophytes of lycopodium and selaginella, double fertilization and xenia, and the frequent footnotes referring to economic publications of the Department of Agriculture. The cuts are generally excellent, a few, notably 198, *221B*, 237, 241, *253B*, are poorly drawn. It is a pleasure, however, to see so many original ones.

As a whole, the book forms an excellent treatise on the elements of botany. Its completeness, technical treatment and absence of all laboratory work—even though that be supplied in the form of a separate manual—remove it from the class of high- and normal-school texts and place it clearly in the class of college books.

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Animal Micrology: Practical Exercises in Microscopical Methods. By MICHAEL F. GUYER. Chicago: University of Chicago Press, 1906. Pp. 340, numerous illustrations of apparatus. $1.75.

The topics discussed in this book are as follows: necessary apparatus; preparation of reagents; general statement of methods; killing, fixing, imbedding, sectioning, staining, and mounting; minute dissections; tooth, bone, and other hard objects; injection of blood and lymph vessels; *in toto* preparations; blood; bacteria; embryological methods with chick, etc.; and reconstruction from sections. There are five appendices (95 pages) with the following titles: "The Microscope and Its Optical Principles;" "Some Standard Reagents and Their Uses;" "Table of Tissues and Organs with Methods of Preparation;" "Preparation of Microscopic Material for a Course in General Zoölogy;" "Table of Equivalent Weights and Measures."

This is a book meant for the beginner. It may be used as a class textbook, as a guide to individual research workers, and as a help to all teachers of zoölogy, histology, or embryology. As a textbook it can hardly be improved. The author has had ten years of practical experience in teaching microscopical technique, and has produced a series of seventeen chapters that are logically arranged and contain practical, definite statements of essential things. Memoranda are appended to each chapter. In these the student will find the material necessary to elaborate the methods given in the course of the regular work. After the student has completed this course, he will be fully equipped, as far as this subject is concerned, to begin research work that calls for microscopical technique, or to go out as a teacher of elementary histology, embryology, or zoölogy. With this book as a beginning he can without help study the involved special methods found in such works as Lee's *Microtomists' Vade Mecum* and Hardesty's *Neurological Technique,* etc. Besides this the student is given in Appendix A a concise non-technical statement of optical principles which will help him get the maximum results from his microscope and will serve as an introduction to larger works, such as Gage's *The Microscope.*

The research worker will find in this book just the information he frequently needs in preparing material with which he is not familiar.

The teacher of zoölogy will value Appendix D (pp. 215–26), which has been incorporated for his special benefit. These pages tell him how to prepare slides and other material of the many groups of animals.

On looking over the book the advanced student cannot help but wish that it might have been available when he began his work.

True Bird Stories from My Note-Books. By OLIVE THORNE MILLER. With illustrations by LOUIS AGASSIZ FUERTES. Boston and New York: Houghton, Mifflin & Co., 1903. Pp. 156.

These stories are of special interest as the author tells us in the preface that they are strictly true. This fact gives the book a place apart from the many nature-study books that are now flooding the market. These latter either give their subjects human attributes or else a remarkable command of the English language. Mrs. Miller tells the simple events in the lives of a dozen birds that she received from bird-stores in New York and Brooklyn and kept during the winter in part of the house called the "bird-room." The captives were liberated in the country when the other birds came back from the south in the spring. The stories are delightfully told, and both old and young are sure to enjoy reading or hearing about "The Bird That Would Not Be Free," "The Baby Robin," and "The Saucy Oriole." Fifty pages are also devoted to birds out of doors. The stories are short, and more than twenty kinds of common birds figure in them. They would serve admirably as reading-lessons at any time during the winter or spring, and give just the material that is often desired when children have learned to know a bird and want to hear more about it. Mr. Fuertes has furnished nine full-page illustrations which add to the beauty of the book.

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